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A New Species of *Scapheremaeus* (Acari, Oribatida) from Shikoku Island, Japan

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Abstract A new species, *Scapheremaeus tosaensis* sp. nov. is described from soil material of the garden, grave yard and forest associated with Tanemaji temple, Kōchi-ken in Shikoku Island. The new species has dark sensilli, a non-protruding humeral region, a large rectangular lenticulus, strongly concave posterior region on notogaster, and telescope shape leg setae.

Key words: Japan, new species, Oribatida, *Scapheremaeus*, Shikoku

From Japan, three species belonging to the cosmopolitan genus *Scapheremaeus* Berlese, 1910 have been recorded (Aoki, 2000), namely, *S. nashiroi* Nakatamari, 1989, *S. yamashitai* Aoki, 1970 and *S. trirugis* Hammer, 1958. All specimens in the present work identified as member of the genus *Scapheremaeus* were collected from soil material of the garden, grave yard and forest associated with Tanemaji temple in Shikoku Island. The notations of descriptions and fissures in this work are according to Rios & Palacios-Vargas (1998).

Scapheremaeus tosaensis sp. nov.

[Japanese name: Tosa-suppondani]

(Figs. 1 & 2)

Material examined: Holotype (NSMT-Ac 11901) from soil material of Tanemaji Temple, Haruno-chō, Kōchi-ken (33° 29' 30, 133° 29' 15, about 10m a.s.l.), Dec. 2, 2004, Y. Nakamura & T. Fujikawa; one paratype (NSMT-Ac 11902) the same as holotype. The types are deposited in the National Science Museum, Tokyo.

Measurements and integument (n=2 ♀): Body length: 379-386 μm; width: 221-229 μm. Body color dark brown. Body surface bearing granules. Granules showing a network variable in size and form on prodorsum, notogaster and anal plates, and forming ridges on mentum, podosoma, genital plates and legs.

Prodorsum: Pedotecta I rounded at tip; pedotecta II and III developed as a T-shaped beam. Rostrum rounded; setae *ro* smooth, bacilliform, as long as their mutual distance, arising from anterior rostral margin. Lamellar ridges narrow, nearly straight without free cuspis; transversal ridge absent behind setae *le*. Setae *le* smooth, bacilliform, inserted on apophyses. Setae *in* and *ex* very minute, hardly visible. Bothridia cup-like, opening directed antero-laterally. Sensilli capitate with thin pellucid stem, directed outwards; head black, granulated, larger than the size of bothridial opening. Relative lengths and distances of prodorsal setae: *ss* > *ro* > *le* > *ex* > *in;* (*in-in*) > (*le-le*) > (*ro-ro*) ≒ (*ro-le*) (Figs. 1A & 2A-C).

Notogaster: Elliptical in shape; length to width ratio about 1.3:1. Dorsosejugal suture broadly arched with small humeral protrusions. Notogaster strongly concave posteriorly. Central area surrounded with pentagonal ridge and two short ridges, proceeding from front of setae *lm* to fork at back of setae *lp*. A large rectangular lenticulus present at the anterior marginal zone. Ten pairs of notogastral setae smooth, short, bacilliform. Setae *lm* and *lp* inserted in the dorsocentral region, and others in the marginal zone. Opisthosomal glands opening at the level of setae *lp* near dorsocentral suture. Lyrifissures *ia* large, aligned obliquely; setae c_2 inserted postero-laterally to *ia*. Lyrifissures *im* transversely situated at the level between setae *lm* and *lp*. Relative distances between notogastral setae: (*lp-lp*) > (*lm-lm*) ≒ (h_1-h_1) (Figs. 1A & 2D).

Ventral region: The interspace between genital and anal apertures about 0.5 and 0.4 as wide as length of genital and anal apertures, respectively. Formula of genito-anal setae 6-1-2-3. Setae *g* and *an* inserted close to the inner margins of plates; setae ad_1 in postanal position: ad_2 and ad_3 located postero-laterally and laterally to anal aperture, respectively. Setae *ag* situated postero-laterally to genital aperture. Lyrifissures *iad* parallel to antero-lateral margin of anal

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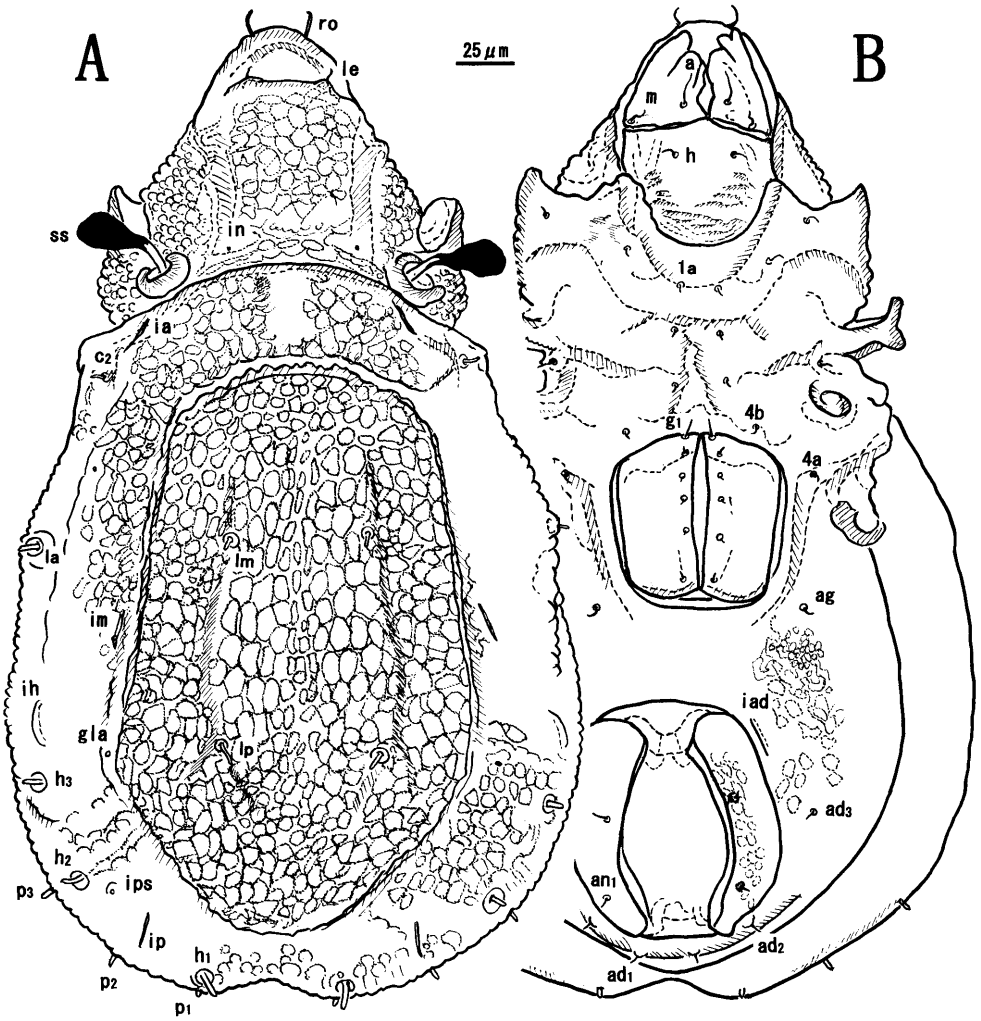

Fig. 1. *Scapheremaeus tosaensis* sp. nov. (NSMT-Ac 11901 ♀) A, Dorsal view; B, Ventral view. *ro, le, in*: Rostral, lamellar, and interlamellar setae; ss: Sensillus; c_2, *la*, *lm*, *lp*, $h_{1\text{-}3}$, $p_{1\text{-}3}$: Dorsal setae; *ia*, *ih*, *im*, *ip*, *ips*, *iad*: Lyrifissures; *1a-4b*: Epimeral setae; $g_{1\text{-}6}$, *ag*, $an_{1\text{-}2}$, $ad_{1\text{-}3}$: Genital, aggenital, anal and adanal setae; *a*, *m*, *h*: Anterior, medial and posterior subcapitular setae.

aperture. Setal formula of epimerata: 3-1-2-2; setae *4a* the longest. Diarthric subcapitulum. Formula of infracapitular setae 1-1-1; relative lengths: $a > h > m$. All ventral setae glabrous; adanal setae bacilliform and others setiform. Relative lengths of ventral setae: $a > g \fallingdotseq h > 4a > ad > m > an > ag$. Relative distances between ventral setae : $(4b\text{-}4b) > (3a\text{-}3a) > (1a\text{-}1a) \fallingdotseq (2a\text{-}2a)$; $(ad_2\text{-}ad_3) > (ad_1\text{-}ad_2) > (ad_1\text{-}ad_1)$ (Figs. 1B, 2E & 2-setae).

Legs: All legs monodactylous; claws dentate dorsally. Leg chaetotaxy: I (1-4-2-4-14), II (1-4-2-3-12), III (2-2-1-3-12), IV (1-2-2-2-10). Solenidiotaxy; I (1-2-2), II (1-1-1), III (1-1-0), IV (0-1-0). Solenidia ω_1 and σ bacilliform; ω_2 and ϕ setiform. Famulus ε dull at tip with a conical root, inserted in front of solenidia ω_1 and ω_2. Every femur and trochanter with a small protrusion (Fig. 2F). Telescope-shaped setae (Fig. 2H) present on tarsus II, genua I-III, all femora and trochanter III (Fig. 2G).

Etymology: After the historical name of locality where the specimens were collected.

Remarks. The 82 known species of genus *Scapheremaeus* (Subías, 2004) have small size, 259 to 582 μm in body length, and are divided into some groups by presence or absence of true lamellae and free cuspis, dark or light sensilli, and protruding or round humeral region. The present species is similar especially to *Scapheremaeus foveolatus* Mahunka, 1987 from Vietnam, *S. nashiroi* Nakatamari, 1989 from Okinawa, South Japan, *S. palustris* Sellnick, 1924 from Estonia and *S. trirugis* Hammer, 1958 from Argentine,

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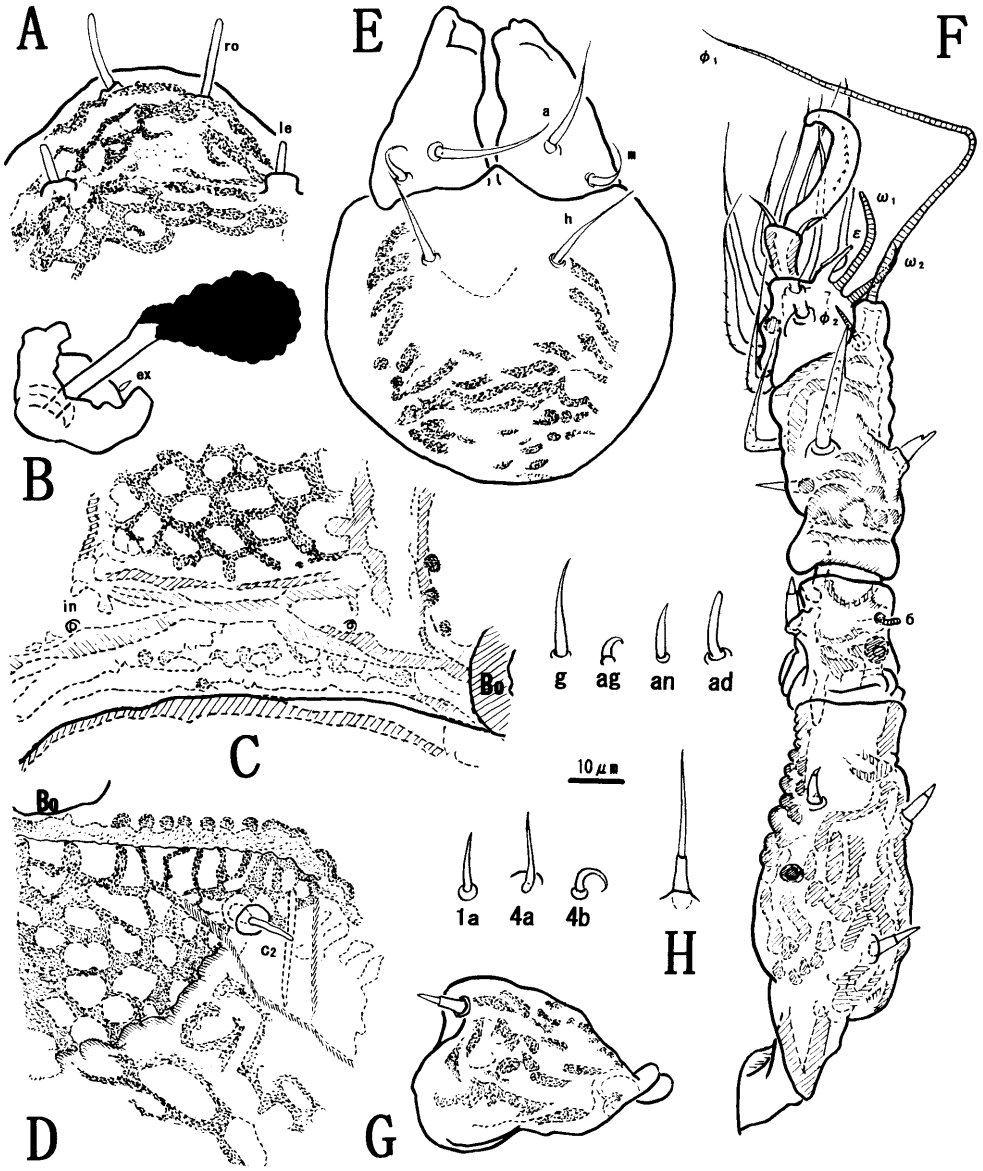

Fig. 2. *Scapheremaeus tosaensis* sp. nov. (NSMT-Ac 11902 ♀). A, Rostral region; B, Bothridial region; C, Interlamellar region; D, Humeral region; E, Infracapitular region; F, Right leg I; G, Right trochanter III; H, Seta *ft* of telescope-shape on tarsus II. *ro, le, in, ex*: Rostral, lamellar, interlamellar and exobothridial setae; Bo: Bothridium; c_2: Dorsal setae; *1a 4a, 4b*: Epimeral setae; *g, ag, an, ad*: Genital, aggenital, anal and adanal setae; *a, m, h*: Anterior, medial and posterior subcapitular setae; ε : Famulus on tarsus of leg I; $\omega_{1\text{-}2}$, $\phi_{1\text{-}2}$, 6 : Solenidia on tarsi, tibiae and genua of leg I.

members with dark sensillus and small humeral region, but without true lamellae, free cuspis and singular form of notogaster or setae. The new species is, however, different from *S. foveolatus* by its larger body length, absence of X-shaped sculpture on posterial prodorsal region, and concave notogastral postral form, and a rectangular lenticulus; *S. nashiroi* by body size, and ratio of their mutual distances of setae *ro* and *le*; *S. palustris* by size of humeral region; *S. trirugis* by form of dorsocentral region and notogastral posterior margin.

Leg setae of special form are familiar to some members of the genus, such as *S. arboreus* Corpuz-Raros, 1979 from Philippines with large clavate setae; *S. baloghius* Rios et Palacios-Vargas,1998 from Mexico and *S. trirugis* Hammer, 1958 bearing long setae with a knob at the end; *S. clavifer* Hammer, 1958 from Argentine with thick and brush-like setae; *S. crassus* Mahunka, 1988 from Vietname with setae dilate distally; *S. nuciferosa* Ramani et Haq, 1998 from India

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with setae curved and swollen apically; *S. palaciosi* Rios, 1996 from Mexico and *S. yamashitai* sensu Fujikawa, 2002 with barbulate setae; *S. tonatiuh* Palacios-Vargas et al., 1998 from Mexico with plumose setae. However, the telescope-shape is peculiar to leg setae of the new species.

Members of the genus have been collected from amber and habitats like debris, mosses and lichens on rocks, walls of cliffs or tree, humus, leaves or soil in higher region (more than 1,000 m a.s.l.), the canopy of forest, bird' s nests, or plant foliage over the world. The present material was collected from humus, litter and soil on the ground surface under large trees of *Cycas* and *Cryptomeria* at the garden of a temple near sea shore of Pacific Ocean.

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摘　要

藤川徳子 （〒791-0203 愛媛県東温市横河原1375-115）：四国産スッポンダニ属の1新種.

2004年12月に, 高知県春野町にある四国霊場88寺34番札所種間寺境内にあるソテツやスギの根際や鐘楼の石垣周辺の落葉, 腐植そして土壌などを採取した. 抽出したササラダニの中から*Scapheremaeus tosaensis* sp. nov.トサスッポンダニ（新称）を発見し記載した. 黒い胴感毛, 突出することのない肩部分, 後体部の周縁部内前部中央の大きく角型の明斑, 後体部後端部の大きな凹み, そしてはめ込み状の形をした脚毛の存在などにより他の同属種から区別できる. 同属の既知85種には樹冠部分や1,000 m以上の高地や絶壁の蘚苔, 地衣類など, また鳥巣などから発見された場合が多かった. しかし当新種は太平洋の波打ち際から遠くはない海抜約10 mほどの土壌表面から採集した事は興味深い.

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